

Temperature Sensors



DP CONTROLS

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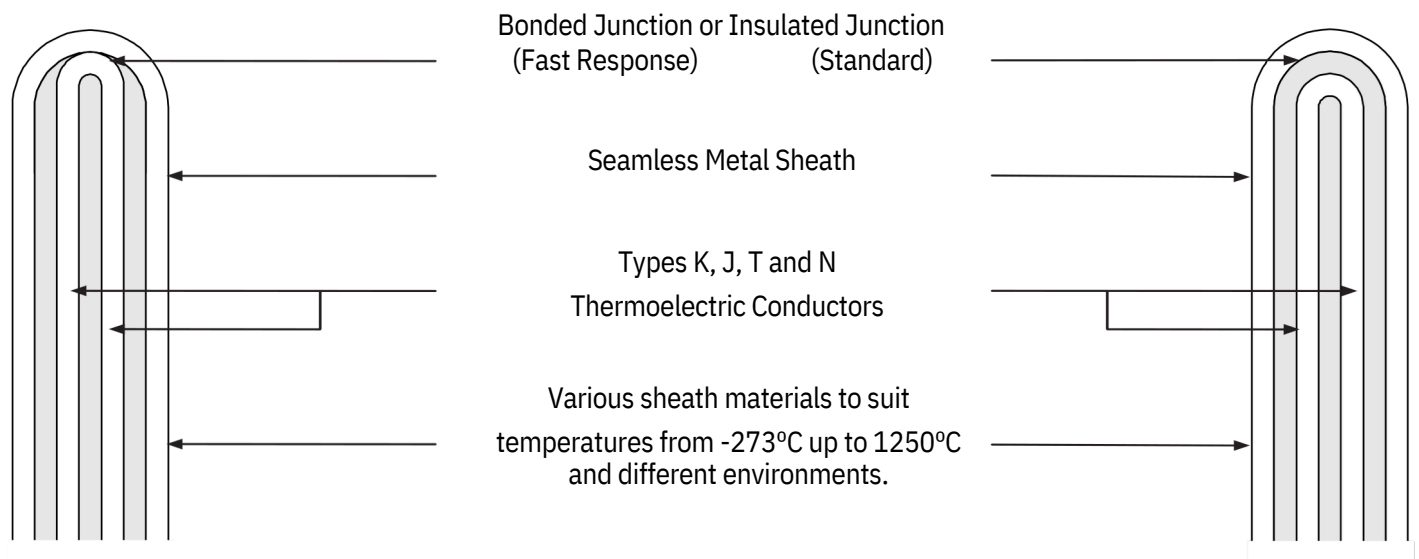


There are many types of thermocouples available on today's market. Each has its own particular advantages and disadvantages. In some cases thermocouples are designed for specific measurement problems. In other cases, thermocouples are manufactured for a wide variety of applications. No one thermocouple will suit all applications. Thermocouples must be selected to meet the needs of a particular application.

The most basic thermocouple is the wire and bead type. The disadvantage of this type is that they all have an exposed junction. Although the exposed junction provides a good response time, it is open to the environment. This will cause the thermoelectric conductors to become contaminated by the environment (oxidising and reducing atmospheres) leading to unstable temperature readings.

The Mineral Insulated Metal Sheathed (MIMS) thermocouple overcomes these disadvantages.

The MIMS consists of two thermoelectric conductors embedded in highly compacted magnesium oxide insulation and protected by a metallic sheath.



Advantages of MIMS Thermocouples

- Small in Diameter.
- Can be supplied in long lengths.
- Pliable for ease of installation.
- No additional protection is required.
- Can withstand high pressure and thermal shock.
- Fast response time.
- High insulation resistance over a wide range of temperatures.
- Impervious to water, oil and gas.
- Thermoelectric conductors protected from oxidisation, environmental corrosion providing more stable temperature readings.

EMF Standards and Tolerances

Mineral Insulated Thermocouples are manufactured with nominal EMF/ temperature characteristics complying with the new International Thermocouple Reference Tables which are published in the following standards: BS 4937 (UK), ASTM E230-72 (USA), JISC 1602 (Japan).

Type	Outer Diameter (mm)	Sheath Material	Maximum Temperature
Type 'K' Single	1.0	310SS	1100°C
	1.5	310SS	1100°C
	1.5	Inconel 600*1	1150°C
	3.0	310SS	1100°C
	3.0	Inconel 600*1	1150°C
	3.0	Nicrobell*2	1200°C
	4.5	310SS	1100°C
	4.5	Inconel 600*1	1150°C
	6.0	310SS	1100°C
	6.0	Inconel 600*1	1150°C
	6.0	Nicrobell*2	1200°C
	5.5 Heavy Wall	310SS	1100°C
	5.5 Heavy Wall	Inconel 600*1	1150°C
	10.8 Heavy Wall	310SS	1100°C
10.8 Heavy Wall	Inconel 600*1	1150°C	
Type 'K' Duplex	3.0	310SS	1100°C
	4.5	310SS	1100°C
	6.0	310SS	1100°C
	6.0	Inconel 600*1	1150°C
Type 'J' Single	1.5	304SS	750°C
	3.0	310SS	750°C
	6.0	310SS	750°C
	6.0	321SS	750°C
Type 'J' Duplex	6.0	310SS	750°C
Type 'T' Single	1.5	Cupro-Nickel	400°C
	3.0	321SS	400°C
	6.0	310SS	400°C
Type 'T' Duplex	6.0	310SS	400°C
Type 'N' Single	1.5	Nicrobell*2	1200°C
	3.0	Nicrobell*2	1200°C
	6.0	Nicrobell*2	1200°C
Type 'N' Duplex	6.0	Nicrobell*2	1200°C

*1 Inconel is a registered trade name of Henry Wiggin & Co Ltd.

*2 Nicrobell is a trademark of Nicrobell Pty Ltd.

Note: Other sizes and sheath materials available on request.